REMARKS:

Claims 1-21 are pending in the application. The Applicants would like to thank the Examiner for indicating that all formal rejections of the Claims have be withdrawn.

In the final Office Action, the Examiner has maintained the rejection of Claims 1,8,10, 11, 13, 15-19 under 35 U.S.C. § 103(a) as being unpatentable over Russell (Composite Repair Issues on CF-18 Aircraft, AGARD Conference Proceedings, Vol. 550, pages 14-1 to 14-8). The Examiner has also maintained the rejection of claims 2-5 and 20, and added new claim 21 to this rejection, under Russell (Composite Repair Issues on CF-18 Aircraft, AGARD Conference Proceedings, Vol. 550, pages 14-1 to 14-8) in view of Wilenski (Evaluation of an E-Beam Cured Material for Cryogenic Structure Usage 47th International SAMPLE symposium, 2002, pages 109-123).The rejection of claim 14 under 35 U.S.C. §103(a) over Russell in view Dehm (Fast, In-Situ Repair of Aircraft Panel Components, J. Aircraft, Vol. 26, No. 5, 1989, pages 476-81 has also been maintained. The rejections were maintained for the same reasons set forth in the Office Action mailed November 16, 2005 as discussed below.

In the section entitled *Response to Arguments* on pages 9 and 10 of the final Office Action, the "Examiner maintained the position set forth in the previous rejection and asserts that either the gas gun or the drilling action which takes place during the repairing process of Russell would provide a force that would create slots or fissures." In support of this assertion, the Examiner again refers to Russell's Fig. 5 on page 14-3

and states that this figure "shows the delaminating produced by impact testing as horizontal lines in the laminate, and it is unclear how these [lines] cannot be interpreted to be thin slots or fissures. The Examiner maintains that the interpretation of these defects as "thin slots or fissures" is valid based on the depiction in Fig. 5 of the defects as lines instead of as voids. As further support of this position, the Examiner relies on the newly cited reference Bhattacharyya (A Study of Drilling in Kevlar Composites, Composites Science and Technology, Vol. 58 (1998), pages 267-283). For the reasons stated in the response to the previous Office Action and for the additional remarks below, the Applicants respectfully disagree.

First, as acknowledged by the Examiner, Russell fails to explicitly teach that the lines in Figure 5 are in fact thin slots or fissures. (See Office Action, page 3, last paragraph). Instead, as mentioned above, the Examiner asserts that it is clearly obvious that the lines in Fig. 5 of Russell represent thin slots or fissures as recited in the claims. The Applicants do not agree with this interpretation, but instead assert that the lines show "bores" which is consistent with the teachings of the rest of the article. In this regard, a Declaration under 37 C.F.R. § 1.132 executed by joint inventor Max Krogager in the capacity of an expert, is enclosed. In paragraphs 3-5 of the enclosed Declaration, Mr Krogager, describes the distinct and important improvement of producing thin slots and/or fissures instead of coarse drilling holes produced by drills and/or gas guns as in Russell.

In paragraphs 6-8 of the enclosed Declaration, Mr. Krogager states that as an expert, Russell fails to teach or suggest the use of thin slots and/or fissures in the laminate and any of the accompanying advantages. Mr. Krogager states that Figure 5 does not show thin slots or fissures, but instead the lines referred to by the Examiner in maintaining the rejections represent large fissures/slots of the boundaries between the layers in the structure. Mr. Krogager further states that any other interpretation of these lines would indicate that the slots would have extensions all the way through the composite material. Instead, Mr. Krogager characterizes these lines as "bores" and states that the use of bores by Russell involves searching and striking the end portions of fissures/slots corresponding to the lines depicted in Figure 5 of Russell so as to make the bores even larger in order to repair the laminate.

Therefore, Russell explicitly teaches a method for repairing laminate structures on CF-18 aircrafts using large bores to repair cracks in the lamination as illustrated in Figure 5 and not thin slots and/or fissures as in the present invention. In fact, Mr. Krogager contends that as an expert in the field, one skilled in the art after reading the Russell disclosure would be led away from producing thin slots and/or fissures as in the present invention, and but would instead be driven to use coarse holes such as bores to repair laminate structures of CF-18 aircrafts. For this reason alone, the rejection must be reconsidered and withdrawn.

In addition, as stated above, the Examiner further relies on the newly cited reference Bhattacharyya (A Study of Drilling in Kevlar Composites, Composites Science

and Technology, Vol. 58 (1998), pages 267-283)(here in Bhattacharyya) to further support the Examiner's interpretation of Russell. However, a close reading of Bhattacharyya actually shows that it does not support the Examiner's interpretation of Russell but instead supports the Applicants interpretation that Figure 5 of Russell does not teach thin slots and/or fissures.

Firstly, Bhattacharyya clearly uses a different drilling mechanism with specialized drill bits than the coarse drilling recited in Russell and there can nor be compared with the holes made in Russell. In Russell, the "holes were drilled with a small portable drill mounted to a stand fitted with a micrometer feed", (See Russell, page 14-5, column 1, lines 26-30), where as the holes produced in Bhattacharyya were "drilled with modified drill bits under cryogenic conditions without any backing plate were, as expected, more susceptible to delamination". (See Bhattacharyya, page 277, column 1, lines 12 - 15.) In stark contrast, the holes made in Russell were made using a coarse drill attached to an extension containing regular drill bits and the laminated structure was supported by a backing plate.

In fact, the drilling mechanism described in Russell for making the holes shown in Fig. 5 of Russell are reported in Bhattacharyya as causing little or no delamination of the laminated structure. Bhattacharyya clearly states that it "was very evident that the specimens machined with normal drills using a backing plate (as in Russell) showed little or no delamination under both ambient and cryogenic conditions. (See Bhattacharyya, page 277, column 1, line 16 to column 2, line 1.) Therefore, the

Applicants respectfully contend that Bhattacharyya does not support the Examiner's interpretation of Russell, but instead actually supports the Applicants' contention that Russell, Fig. 5 does not show thin slots or fissures as recited in the present claims and does not cause delamination as in the present invention. Thus, the Examiner's reliance on the newly cited reference, Bhattacharyya, in support of his interpretation of Russell is misplaced.

Since both Russell and/or Bhattacharyya fail to teach or suggest the specific claim limitations of claim 1 of the present invention, and these limitations are not rectified by the secondary references, Applicants respectfully request that the rejection of claim 1, and claims 2-21 that depend on claim 1, be reconsidered and withdrawn.

In view of the foregoing, favorable consideration of the application as amended is respectfully requested. Please contact the undersigned attorney should there be any questions. Early favorable action is earnestly solicited.

Respectfully submitted,
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